

US EPA ARCHIVE DOCUMENT

**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V
POLLUTION/SITUATION REPORT #138**



**KALAMAZOO RIVER/ENBRIDGE SPILL – REMOVAL
SITE # Z5JS
MARSHALL, MICHIGAN
LATITUDE: 42.2395273; LONGITUDE: -84.9662018**



Confluence Excavation and Restoration Activities Completed

To: Susan Hedman, U.S. EPA Regional Administrator
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From: Ralph Dollhopf, U.S. EPA, Federal On-Scene Coordinator

Date: 3/23/2012

Reporting/Operational Period: 0700 hours 3/08/2012 through 0700 hours 03/15/2012

1. Site Data

Site Number:	Z5JS	Response Type:	Emergency
Response Authority:	OPA	Incident Category:	Removal Action
Response Lead:	PRP	NPL Status:	Non-NPL
Mobilization Date:	7/26/2010	Start Date:	7/26/2010
FPN#:	E10527		

2. Operations Section

- The organizational response structure consisted of the following Branches: 1) Overbank; 2) Submerged Oil; 3) Containment; 4) River Reopening; 5) Kalamazoo River; 6) Talmadge Creek; 7) Air Operations; and 8) Waste Management.

2.1 Overbank Branch

2.1.1 OSCAR Group

- The OSCAR Group conducted data review, quality control, and evaluation of outstanding overbank sites to ensure that all pending issues are addressed.
- Sites status information is presented in Table 3.

2.1.2 Overbank Science Group

- Information gathering and data compilation for expedited RI work recently completed at OB 8.48 LDB continued.

2.1.3 Overbank Compliance Group

- Tracking and follow up of issues relating to variances to the permit for OB 9.10 LDB continued.

- Tracking and follow up of issues for the permit for OB 8.97 Island and OB 10.37 RDB continued.

2.1.4 Overbank Recovery Group

- Daily maintenance and monitoring of the Talmadge Creek diversion system at the Talmadge Creek and Kalamazoo River confluence continued until demobilization was completed.
- Rain and flooding continued to impede excavation activities at OB 8.97 Island and OB 10.37 RDB.
- Excavation activities began at OB 9.10 LDB but were also limited due to rain and flooding. As of the end of the operational period, approximately 80% of the soil removal work was completed at OB 9.10 LDB.

2.1.5 Overbank Monitoring Group

- Enbridge continued to maintain an odor response team; however, no odor complaints were received during this operational period.
- Air monitoring and sampling information is included in Tables 1 and 2.

2.2 Submerged Oil Branch

2.2.1 Submerged Oil Assessment Group

- The Group was added this operational period to begin development of tactical plans for submerged oil recovery in 2012, consistent with the command emphasis. The Group met on a daily basis during the operational period to develop the tactical plans.

2.2.2 Submerged Oil Science Group

- In response to EPA's February 2, 2012 letter, the Group continued review of the revised Quantification of Submerged Oil Report.
- On February 20, 2012 Enbridge submitted the Report of Findings for Submerged Oil Temperature Effects Study. The report is currently under review by the EPA.
- Modified Temperature Effects Studies conducted on the samples collected for the SSCG was completed.
- Additional testing continued to be conducted off-site by Dakota Technologies to determine the effectiveness of optical screening of residual oil in sediments.
- Centrifuge testing continued to be conducted off-site to supplement sub-oil quantification efforts.
- The Group continued to compile information regarding the evaluation conducted on sediment samples collected at SO 9.00 to present to the OSCAR Group.

2.2.3 Submerged Oil Compliance Group

- No activities were conducted during the reporting period.

2.2.4 Submerged Oil Recovery Group

- No activities were conducted during the reporting period.

2.2.5 Submerged Oil Monitoring Group

- No activities were conducted during the reporting period.

2.3 Containment Branch

2.3.1 Containment Science Group

- Under the Group's direction, Enbridge continued to prepare a modified plan and permit application to include 15 additional active sediment traps and fewer passive locations. Enbridge is evaluating information and data requirements for permitting of the additional active trap locations.
- Evaluation of subsurface sediment monitoring strategies and devices for various locations along the Kalamazoo River continued.
- The Group continued to develop strategies for evaluating the hydrodynamic characteristics of the 22 proposed active sediment traps using the numerical Hydrodynamic Model in response to a request for supplemental information from the MDEQ.

2.3.2 Containment Compliance Group

- The Group continued to track previously submitted MDEQ permit applications for proposed submerged sediment collection structures at six select locations along the Kalamazoo River.

2.3.3 Containment Recovery Group

- As of the close of the operational period, teams continued to maintain 1,750 feet of surface hard boom at 10 protective containment sites, and 200 feet of surface hard boom at 1 control point. Teams removed debris accumulated within the boomed areas.
- Maintenance and monitoring of sediment control devices within Talmadge Creek between MP 1.4 and MP 2.0 continued until restoration and removal activities were completed.

2.3.4 Containment Monitoring Group

- Water level gauges continue to be monitored at multiple locations along the Kalamazoo River, the Morrow Lake Delta, and Morrow Lake.
- Control points in Talmadge Creek and protective containment points in the Kalamazoo River continued to be monitored.

2.4 River Reopening Branch

2.4.1 River Reopening Media Group

- Coordination of media relations personnel was initiated in order to prepare for river reopening events.
- Preparation of kiosk materials and signs to be posted along the river began.

2.4.2 River Reopening Assessment/Confirmation Group

- A plan is being developed to determine potential remaining impacts in the river and on the overbank areas from the confluence of Talmadge Creek and the Kalamazoo River to Saylor's Landing (MP 2.25).

2.4.3 River Reopening Implementation Group

- A buoy permit application is in development for Calhoun County.
- Acquisition and staging of river traffic control devices was initiated.

2.4.4 River Reopening Monitoring & Security Group

- A Site Specific Safety Plan for use of the River by both response personnel and the public is in development.
- A plan for maintaining security of sections of the river that will remain closed is in development.

2.5 Kalamazoo River Branch

2.5.1 Kalamazoo River Remedial Investigation Group

- Implementation of the Kalamazoo River RI Work Plan for Enbridge owned properties between MP 5.8 and MP 11 continued.

2.5.2 Kalamazoo River Compliance Group

- Restoration and stabilization activities were conducted at various Kalamazoo River Bank Erosion Assessment (KRBEA) Sites.
- Permit applications for the Raymond Road KRBEA site were prepared.
- Evaluation of RI data for MP 2.25 to MP 5.8, OB 8.48 LDB, and MP 13.00R1 continued.

2.5.3 Kalamazoo River Remedial Action Group

- No activities were conducted during the reporting period.

2.5.4 Kalamazoo River Monitoring Group

- Teams conducted surface water sampling at monitoring stations in the Kalamazoo River. A sampling summary is presented in Table 2.

2.6 Talmadge Creek Branch

2.6.1 Talmadge Creek Remedial Investigation Group

- Data compilation from the Talmadge Creek RI study continued.

2.6.2 Talmadge Creek Compliance Group

- Evaluation of RI data and Verification of Soil Remediation (VSR) data for MP 0.50 to MP 2.0 continued.

2.6.3 Talmadge Creek Remedial Action Group

- Demobilization of the pump-around, GAC dewatering systems, and flocculent/turbidity control system was completed.

- Removal of soil erosion and sedimentation controls was completed.
- Excavation, restoration and demobilization between MP 1.75 and MP 2.25 was completed.
- Crews continued to demobilize sheet piling, equipment and road mats from the recently completed confluence excavation. Crews conducted some oil-impacted soil scraping activities in some areas as road mats were being removed between A-Drive and the confluence.

2.6.4 Talmadge Creek Monitoring Group

- During the reporting period erosion control devices on Talmadge Creek between MP 1.4 and MP 2.0 were removed.
- Water quality monitoring was conducted during excavation activities along Talmadge Creek. Water quality monitoring activities also continued at the confluence diversion outfall and in the Kalamazoo River downstream of the confluence.
- Air monitoring was conducted during operations at Talmadge Creek. No detections were noted during the reporting period.

2.7 Air Operations Branch

- One over-flight was conducted for situational awareness during this reporting period.
- Photographs were taken during the over-flights for presentation during Operations, Command and General Staff, and Multi-Agency Coordination (MAC) meetings.

2.8 Waste Management Branch

2.8.1 Decontamination Group

- A summary of equipment and boom decontaminated during this reporting period is presented in Table 4.

2.8.2 Transportation and Disposal Group

- Contaminated soil, water, and debris continue to be removed to staging areas. Samples are collected for oil recovery determination prior to off-site disposal.
- The total amount of recovered oil from the inception of the response has been estimated using actual waste stream volumes, analytical data, and physical parameters of oil-containing media. A summary of the estimated volume of recovered oil is presented in Table 9.
- Quantities of oil and debris shipped off-site during the reporting period are presented in Tables 5 through 8.

2.8.3 Waste Management Characterization Group

- Waste management characterization, manifesting, and coordination of transportation and disposal continued according to approved plans.

3. Planning

3.1 Situation Unit

- Situation Unit personnel observed and documented progress in operational areas, and continued to assess areas of interest including locations of oil sheen, turbidity, and ice formation.
- Daily situation photo logs were prepared and distributed to project participants.

3.1.1 GIS Specialists

- GIS personnel continued to support operations with the generation of site maps.

3.2 Environmental Unit

- EPA continued coordination with United States Geological Survey (USGS) regarding the Kalamazoo River geomorphology evaluation and the impact on strategy and tactics for future oil recovery efforts.

3.3 Documentation Unit

- Documentation Unit personnel continued organizing and archiving electronic and paper files.

3.4 Resource Unit

- Personnel continued to produce Incident Action Plans (IAPs), support the planning efforts of operations, and provided information to Logistics personnel in order to properly prepare and procure resources.

4. Command

4.1 Safety Officers

- Safety personnel continued to conduct work-site safety inspections, with a focus on activities at Talmadge Creek and the confluence.
- Throughout the reporting period, the only safety related incident was due to a non-site vehicle. Debris not fully contained within the cargo area struck the mirror on the cab of a site transport truck.
- With the potential for severe weather and the approach of tornado season safety briefings are used to reiterate precautions and sheltering procedures.

4.2 Public Information

- The number of public inquires reported by Enbridge for this period is presented in Table 10.

5. Landowner Environmental Issues

- Landowner environmental issues, as reported by Enbridge, are presented in Table 11.

6. Finance

- The current National Pollution Funds Center (NPFC) ceiling is \$49.7 Million. Approximately 81.6% of the ceiling has been spent through March 11, 2012. The latest average 7-day burn rate was \$35,081. These cost summaries reflect only EPA-funded expenditures for the incident. A summary of these expenses is presented in Table 12.

7. Scientific Support Coordination Group (SSCG)

- The Eco-Toxicity Subgroup continued preparation of a Net Environmental Benefits Analysis (NEBA) to assess the harm and benefits accompanying oil recovery efforts. Sediment toxicity samples continue to be analyzed by the off-site laboratory.
- The Chemical Fingerprinting and Biodegradation Subgroup received preliminary results from U.S. EPA's Environmental Response Team (ERT) that provide evidence regarding biodegradability of submerged oil. Additional studies are underway.
- Chemical fingerprinting samples continue to be analyzed by the off-site laboratories.
- Preparations continued for the next on-site meeting scheduled for March 29-30, 2012.

8. Participating Entities

- The MAC Group continues meeting twice per month to discuss the progress of the response. Entities participating in the MAC include:
 - U.S. Environmental Protection Agency
 - Michigan Department of Environmental Quality
 - Michigan Department of Community Health
 - City of Battle Creek
 - City of Marshall
 - Allegan County Emergency Management
 - Calhoun County Public Health Department
 - Calhoun County Emergency Management
 - Kalamazoo County Health and Community Services Department
 - Kalamazoo County Sheriff
 - Enbridge (Responsible Party)
- For a list of cooperating and assisting agencies and the congressional presence, see SITREP #51 (Sections 3.2 and 3.3).

9. Personnel On-Site

- Staffing numbers for the entities and agencies active in the response are presented in Table 13.

10. Source of Additional Information

- For additional information, refer to <http://www.epa.gov/enbridgespill>. For sampling analysis data, see <http://response.enbridge.com/response/>.

11. Clean-up Progress Metrics

Table 1 – Real Time Air Monitoring Counts Performed by Enbridge

Monitoring Location	Total	March 2012						
		14	13	12	11	10	9	8
Odor Response	0	0	0	0	0	0	0	0
Work Area	76	8	10	6	0	19	17	16

Table 2 – Samples Collected By Enbridge

Sample Type	Total	March 2012						
		14	13	12	11	10	9	8
Surface Water	22	13	9	0	0	0	0	0
Private Well	0	0	0	0	0	0	0	0
Groundwater	2	1	0	0	0	0	1	0
Sediment	3	3	0	0	0	0	0	0
Soil	55	5	8	9	0	1	18	14
Dewatering	0	0	0	0	0	0	0	0
Air (Odor Complaint)	0	0	0	0	0	0	0	0
Air (Work Area)	0	0	0	0	0	0	0	0

Table 3 – Site Status Information (as of 3/14/2012)

Overbank Branch	4
Submerged Oil Branch	183
Containment Branch	8
Talmadge Creek Branch	1
Kalamazoo River Branch	4
Consistent with EPA Order and up for MDEQ Part 201 Program	4
Total Sites	204

Table 4 - Equipment Decontamination

Location/Media	Total	March 2012						
		14	13	12	11	10	9	8
Frac Tanks	2	0	1	1	0	0	0	0
Vac Trucks-Tankers	0	0	0	0	0	0	0	0
Roll-Off Boxes	0	0	0	0	0	0	0	0
Yellow Iron (light)	1	0	1	0	0	0	0	0
Yellow Iron (heavy)	0	0	0	0	0	0	0	0
Jon Boats	0	0	0	0	0	0	0	0
Air Boats	0	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0	0
Boom (linear ft)	100	0	0	50	0	0	0	50
Miscellaneous Items	19	5	2	3	0	6	2	2

Table 5 - Soil and Debris Shipped Off Site (as of 3/15/2012)

Waste Stream	Cumulative	Disposal Facility
Haz Soil (yd ³)	19,644	Envirosafe (Oregon, OH)
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	75,818	SET/C&C
Non-Haz Soil & Debris (yd ³) (Excluding Ceresco Dredge)	64,815	Westside Recycling (Three Rivers, MI)
Non-Haz Soil (yd ³) (Ceresco Dredge Only)	5,562	EQ/Republic (Marshall, MI)
Haz Debris (yd ³)	12,075	EQ/Michigan Disposal (Wayne, MI) and Republic (Marshall, MI)
Non-Haz Household Debris (ton)	1,576	SET/C&C
Non-Haz Impacted Debris (ton)	6,572	

Shaded items are discontinued waste streams.

Table 6 – Oil/Water Collected by Location (as of 3/15/2012)

Location	Cumulative (gallons)
Division A	5,356,315
Division B	5,111,479
Division C	2,096,388
Division D	121,106
Division E	52,631
Decontamination	2,365,739
Site A	320,909
Other Locations*	1,970,759
Subtotal	17,395,326
Sludge**	474,215
Total Oil/Water	16,921,111

* Wildlife Center Operations, Sediment Trap Cleaning, Hydro-Vacuuming.

** Sludge collected is tracked as a liquid waste inbound; however, after stabilization, the sludge is disposed of as solid waste. Therefore, the volume of sludge is not included within the cumulative oil/water totals. Stabilized sludge is included in the solid waste disposal metrics.

Table 7 - Liquid Shipped Off-Site (as of 3/15/2012)

Stream	Destination Company	Destination Location	Cumulative Volume (gallons) †
Non-Haz Water	Battle Creek POTW	Battle Creek, MI	1,143,280
Non-Haz Water	Dynecol	Detroit, MI	981,792
Non-Haz Water	Liquid Industrial Waste	Holland, MI	1,225,357
Non-Haz Water	Plummer	Kentwood, MI	337,725
<i>Hazardous Water</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	<i>3,594,579</i>
<i>Oil</i>	<i>Enbridge Facility</i>	<i>Griffith, IN</i>	<i>766,288</i>
<i>Other Material</i>			<i>1,405,525</i>
<i>Treated Non-Haz Water</i>	<i>Liquid Industrial Waste</i>	<i>Holland, MI</i>	<i>370,200</i>
<i>Treated Non-Haz Water</i>	<i>Plummer</i>	<i>Kentwood, MI</i>	<i>4,976,140</i>
<i>Hazardous Water</i>	<i>Safety Kleen ^a</i>		<i>825</i>
<i>Treated Non-Haz Water*</i>	<i>Dynecol</i>	<i>Detroit, MI</i>	<i>150,700</i>
<i>Treated Non-Haz Water*</i>	<i>Battle Creek POTW</i>	<i>Battle Creek, MI</i>	<i>1,968,700</i>
Total			16,921,111

Shaded and italicized items are discontinued waste streams.

† Cumulative quantities may not reconcile with previous reports (due to auditing).

a New Age lab water and methanol mix generated by mobile laboratory.

* Treated Non-Haz Water no longer sent to this location.

Table 8 - Oil/Water Remaining On-Site (as of 3/15/2012)

Item	Cumulative (gallons)
Oil/Water Collected	16,921,111
Oil/Water Shipped Off-Site	16,921,111
Total Oil/Water Remaining On-Site	0

Table 9 – Estimated Recovered Oil (as of 3/12/2012)

Waste Stream Containing Recovered Oil	Destination Company	Destination Location	Estimated Oil Volume in Waste Stream (gallons)
Soil - (Impacted Soil & Debris)	C&C Landfill	Marshall, MI	13,519*
Soil - (Impacted Soil & Debris)	Envirosafe/ Westside RDF	Oregon, OH	278,665
Geotube Sediment - (Impacted Sediment)	Envirosafe/ Westside RDF	Oregon, OH	1,298
Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegetation, and biomass)	EQ Michigan	Belleville, MI	33,752
Frac Tank City - Influent to Carbon Filtration System	C&C Landfill	Marshall, MI	8,109
Frac Tank City - Water	Dynecol	Detroit, MI	46,172
	Liquid Industrial Waste Services, Inc.	Kentwood, MI	
	Plummers Env Inc.	Holland, MI	
	BC POTW	Battle Creek, MI	
Ceresco Pretreatment System	C&C Landfill	Marshall, MI	90
A-1 Pretreatment System	C&C Landfill	Marshall, MI	9
Oily Water - RPP	Enbridge Facility	Griffith, IN	766,288
Total	-	-	1,147,901

Shaded items represent discontinued waste streams

*Totals updated for analytical received after report generation. Not all analytical is available at the time of report generation.

Table 10 – Public Inquiries Received by EPA and Enbridge

Location/Media	Total	March 2012						
		14	13	12	11	10	9	8
Marshall Community Center	4	0	1	1	0	0	1	1
Oil Spill Public Information Hotline	6	0	1	1	0	1	3	0
Website	0	0	0	0	0	0	0	0
Total Public Inquiries	10	0	2	2	0	1	4	1

Table 11 – Landowner Environmental Issues (as of 3/15/2012)

Issues this Period	Issues Undergoing Evaluation	Issues Considered Addressed
0	5	0

Table 12 - Financial Summary

Item		Expended (Cumulative) (as of 3/11/2012)	
ERRS Contractors			
EQM (EPS50802)	T057	\$	1,199,522
	T060	\$	213,636
LATA (EPS50804)	T019	\$	1,161,082
ER LLC (EPS50905)	T040	\$	683,330
Total ERRS Contractors		\$	3,257,571
Other Contractors			
Lockheed Martin (EPW09031) – TAGA Support		\$	185,951
T&T Bisso (EPA:HS800008)		\$	882,087
Total Other Contractors		\$	1,068,038
START Contractor – WESTON (EPS50604)	T030-Response	\$	22,704,116
	T032-Sampling	\$	183,567
	T037-Doc Support	\$	1,410,751
Total START Contractor		\$	24,298,434
Response Contractor Sub-Totals		\$	28,624,043
EPA Funded Costs: Total EPA Costs		\$	5,711,778
Pollution Removal Funding Agreements – Total Other Agencies		\$	1,622,624
Sub-Totals		\$	35,958,445
Indirect Cost (16.00%)		\$	3,598,252
Indirect Cost (8.36%)		\$	996,121
Total Est. Oil Spill Cost		\$	40,552,817
Oil Spill Ceiling Authorized by USCG		\$	49,700,000
Oil Spill Ceiling Available Balance		\$	9,147,183

Shaded items are discontinued

Table 13 - Personnel On-Site

Agency/Entity	March 2012						
	14	13	12	11	10	9	8
U.S. EPA	1	1	3	0	2	3	3
START	21	21	19	1	16	21	21
MDEQ	7	5	6	0	1	11	6
MDEQ Contractors	6	5	5	0	2	6	7
Calhoun County Public Health	0	0	0	0	0	0	4
Calhoun County (CC) EM	0	0	0	0	0	0	0
City of Battle Creek	0	0	0	0	0	0	0
City of Marshall	0	0	0	0	0	0	1
Village of Augusta	0	0	0	0	0	0	0
Kalamazoo County Public Health	0	0	0	0	0	0	0
Kalamazoo Sheriff	0	0	0	0	0	0	0
MDCH	0	0	0	0	0	0	1
USGS	2	1	0	0	0	2	2
Michigan State Police EMD	0	0	0	0	0	0	0
Allegan County Emergency Management	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Enbridge – Operations Center	56	59	55	1	10	58	58
Enbridge – Talmadge Creek	31	48	44	2	48	60	60
Enbridge – Kalamazoo River	16	15	12	0	3	17	17
Enbridge – Containment	5	6	9	0	4	8	8
Enbridge – Submerged Oil	11	11	9	0	2	8	8
Enbridge – Overbank	16	20	25	2	19	30	30
Enbridge – Waste Management	24	29	36	1	2	22	32
Enbridge – Security & Flaggers	11	11	11	10	10	11	11
Enbridge –Communications Center	9	9	9	1	4	8	8
Total	216	241	243	18	123	265	277

*Enbridge Operations and Field include Enbridge and contractors as reported by Enbridge